AMERICAN
GAS JOURNAL
Established 1859 Pioneer of the Gas Industry

VOL. 126, No. 19
WHOLE No. 3265.

NEW YORK, SATURDAY, MAY 7, 1927

Subscription, $5 Per Year
$6 Canada $8 Foreign

Library of Congress
MAY 12 1927
Smithsonian Deposit

During the British Coal Strike

When Millions of Tons Went Over

RODA

again proved its superiority

A great many of the English Gas Companies, who used RODA Gas Coal along with other American gas coals during the great British coal strike, have testified as to its excellency.

The excerpt from the Gas Journal of London reproduced here shows the record RODA left behind in helping out in this great emergency.

From the Gas Journal of London, Eng., January 27, 1927.

"RODA — this coal proved the most successful, all-around variety for gas-making purposes. The thermal yields were equal to any, the rate of carbonisation higher, although the coke was stronger and tar yield very good. The ash was remarkably low."

GENERAL COAL COMPANY

1727 Land Title Bldg. PHILADELPHIA

Boston
Charleston, S. C.
Charlotte, N. C.
Cincinnati

Exclusive sales agent for Stonega Coke and Coal Co.
and
Exclusive Western Sales Agent for Westmoreland Coal Company

Detroit
New York
Norfolk
Pittsburgh

Advertising Index, page 37 ... Turn to Contents, page 4

BECKER TYPE OVENS
for
North Shore Coke and Chemical Company

THE North Shore Coke and Chemical Company, an organization headed by Mr. William A. Baehr of Chicago, will install a Becker Type Gas Oven Plant at Waukegan, Illinois. The plant, for which a contract has been awarded to the Koppers Construction Company, will consist of 31 Becker Type Combination Coke and Gas Ovens and a complete By-Product Recovery Plant, including equipment for the recovery of ammonia as sulphate.

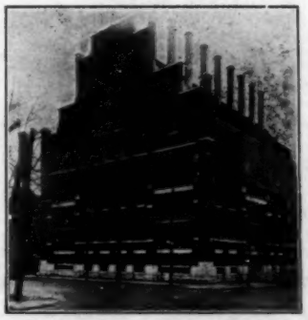
This plant will have a normal sendout of 3,000,000 cubic feet of gas per day. The entire gas output will be distributed by the North Shore Gas Company of Waukegan.

The Koppers Construction Company

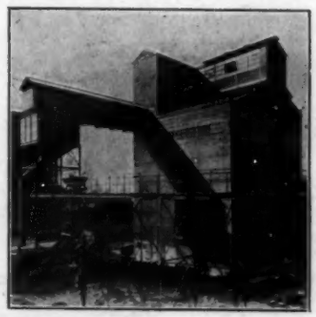
Designers and Builders of
BY-PRODUCT COKE AND GAS PLANTS

Chicago **New York** **Pittsburgh**

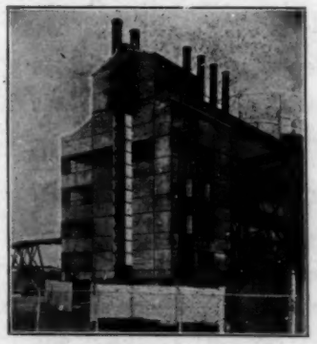
GLOVER-WEST
Vertical Retorts



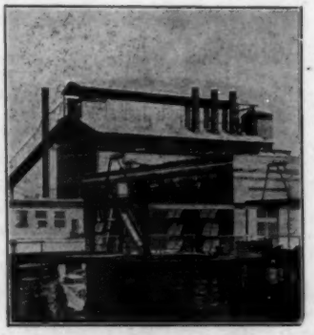
Toronto, Ont.
5,000,000 cu. ft. per day



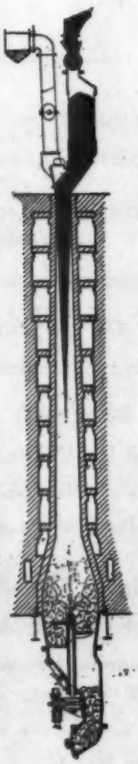
Fargo, N. D.
800,000 cu. ft. per day



Portland, Me., 2nd Plant
750,000 cu. ft. per day



Fall River, Mass.
1,600,000 cu. ft. per day



Plants *Completed* in 1926

Also Completed—Stamford, Conn., 1,100,000 cu ft.; Buenos Aires, 3,500,000 cu. ft.

Under Construction

Springfield, Mass.	2,800,000 cu. ft.	Santiago, Chile	3,000,000 cu. ft.
Toronto, Ont.	600,000 cu. ft.	Pawtucket, R. I.	1,060,000 cu. ft.
		Faribault, Minn.	400,000 cu. ft.

WEST GAS IMPROVEMENT CO.

Builders of Coal Gas Plants

441 Lexington Ave. New York.

American Gas Journal

SIXTY-SEVENTH YEAR

Published Weekly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.

S. G. KRAKE, Pres. and Treas. A. M. GLEASON, Sec'y

STANTON G. KRAKE, Managing Editor HENRY M. RILEY, Editor

ISMAR GINSBERG, Associate Editor

"MEMBER OF THE AUDIT BUREAU OF CIRCULATIONS"

Contents of This Issue

The New Kieler Waste Heat Boile r—D. Elvers 455

How One Company Improved Its Public Relations—Julie Pailet 458

Small Warm Air Installations—J. R. Gibbins 460

The Water Heating Load—Its Values and Possibilities—F. A. Lemke 461

Mid-West Gas Association Holds Annual Convention..... 463

Short Spring Season Indicated—Walter Alwyn-Schmidt 465

Modernizing the Home Economic Equipment in the Schools and Colleges—Sam G. Pugsley..... 466

As the Journal Views It..... 467

Industrial Gas Lesson—Lesson No. 167 468

Gas Merchandising Ideas for the Man Who Sells—William H. Matlack 470

Applying Reason to Public Utility Problems—Frank Milhollan . 472

Progress in Gas Technology..... 473

News of the Gas Industry..... 474

Subscription $3.00 per year, including postage, in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada, $4.00: foreign, $5.00—Single Copies, 10 cents.

AMERICAN GAS JOURNAL, May 7, 1927. Vol. 126, No. 19.
Published weekly by American Gas Light Journal, Inc., New York, N. Y.
Entered as second-class matter Jan. 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

AMERICAN
GAS JOURNAL
Established 1859— Pioneer of the Gas Industry

Vol. 126. No. 19 NEW YORK, MAY 7, 1927 Whole No. 3631

The New Kieler Waste Heat Boiler

Installation efficient, simple and easy of operation

D. Elvers

Das Gas und Wasserfach, Volume 69, 1037 ff.

THE installation in which the waste heat boiler was used consisted of a battery of coke ovens which were fired with their own gas, which was not subjected to any preliminary heating, and then the compartively large quantities of waste heat were recovered in steam boilers which are connected with the coke ovens. One of the particular features of this installation is the great simplicity and ease with which it is operated. This has been specially commented upon.

One point that was brought out in connection with this installation was that the coke oven gas, with its four thousand calories of heat per cubic meter, is too high grade and expensive a gas to be used for underfiring the chambers. It can be used to better purpose in the industries and the home.

It was therefore thought advisable to develop a method of operating the coke ovens wherein the high thermal value coke oven gas would not be used for underfiring the chambers and wherein the advantages of the waste heat boiler would also be retained. This problem was thought to be solved by mixing producer gas with coke oven gas. A calculation, however, showed that an admixture of approximately one-third of coke oven gas to two-thirds of producer gas would be necessary for the production of the necessary flame temperature. This is something that is very troublesome for a gas works to accomplish, for, as it is, they suffer from an excess of coke.

Cooling Hot Coke with Combustible Gases

The author in studying this problem gained the idea that the hot coke should not be cooled with inert gases but with combustible gases; for example, producer gas. This resulted therefore in the preliminary heating of the producer gas without regeneration or recuperation. A very thorough testing of this idea lead to the conclusion that it was practical, for, as is known, the cooling of the coke takes place in the absence of air and hence the gases cannot burn, and in the second place, because the sensible heat in the incandescent coke is sufficient to give satisfactory preliminary heating of the producer gas. It also follows that the producer gas is quite considerably increased in thermal power by the after-gasification of the incompletely gasified portion of the coke in the chamber, through the formation of water gas and the reduction of carbon dioxide to carbon monoxide.

The recovery of heat from the sensible heat in the coke by after-gasification, by water gas formation and by reduction of carbon dioxide to carbon monoxide amounts to 430 kilogram calories per kilogram of the dry coal and hence this amount of heat is sufficient to take care of the under-firing needs of the coke oven installation.

Saving in Initial Cost

A further advantage of this combination of the waste heat boiler with a dry coke cooling installation is the saving in initial cost. This then means that the chamber installation, inclusive of the dry coke cooling, is scarcely less expensive than a normal regenerative or recuperative heated installation, so that the recovery of heat is not counterbalanced by the interest charges on a large amount of capital invested in the apparatus.

It must also be mentioned that in the dry cooling of the coke the proportion of coke breeze obtained is less than one per cent, while in the case of the wet cooling of coke this amounts to at least four to five per cent.

The dry cooling of the coke is carried out with the passage of producer gas of 1,150 kilogram calories per cubic meter (zero degrees C and 760 millimeters pressure) and the production of a gas with 1,200 kilogram calories at approximately 25 degrees C. for every kilogram of dry coke that is processed. Thus the gas in the dry coke cooling process gains 430 kilogram calories of sensible heat in the regenerating process. The oven requires 360 kilogram calories per kilogram of dry coal, so that for every kilogram of dry coal $(1200 + 430) - 360 = 1270$

calories at a temperature of 1100 degrees C. remain available for further use. For each per cent of moisture in the coal the consumption of the furnace increases by ten kilogram calories up to a content of five per cent water, and above this amount up to ten per cent by twelve kilogram calories.

Thermal Details of Process

A calculation has been worked out for the case of coal with seven per cent of moisture. Thus in the dry coke cooling process 1.08 cubic meters of cold producer gas per kilogram of dry coal with a total heat content of 1280 kilogram calories are led through the mass of coke, and the heating value of this gas is increased by 450 kilogram calories through the absorption of the sensible heat in the coke, the formation of water gas, the after-gasification of the coke and the reduction of the carbon dioxide to carbon monoxide. Hence at the end of the coke cooling process 1650 kilogram calories of heat are available, of which 1,250 kilogram calories are added (in 0.82 cubic meters of gas at a temperature of 700 degrees C.) to the chambers and the excess 400 kilogram calories are added to the waste heat boiler in 0.26 cubic meter of gas at a temperature of 700 degrees C. after admixture with 0.365 cubic meter of cold gas. In the chambers themselves 525 kilogram calories are consumed for every kilogram of coal with seven per cent of moisture content, and hence at the outlet of the chambers 1.78 cubic meters of waste gases are obtained at a temperature of 1,100 degrees C., and a heat content of 725 kilogram calories is available for the production of steam in the waste heat boiler.

Figures 1 and 2 show the construction and arrangement of the waste heat boiler, coke coolers and the like. One common coke container is furnished for every three chamber ovens, and this container is so large that it can hold the entire contents of a chamber.

Inasmuch as the duration of cooling the coke is approximately six hours and one of the neighboring chambers is discharged every eight hours at the maximum, hence the coke that is obtained in the

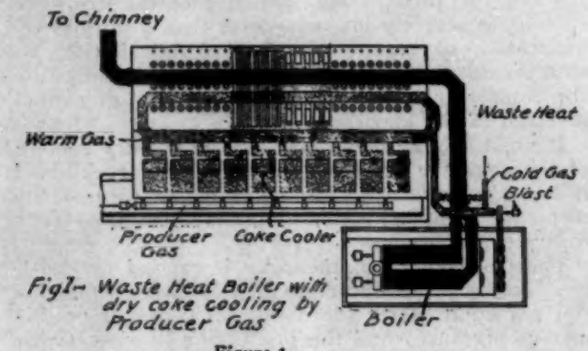


Figure 1

meantime from a chamber is allowed to cool so that when the next oven is discharged the chamber is ready for charging.

Single Coke Container Practical Arrangement

The arrangement of a single container for several ovens is a practical installation, for at no time are several ovens, arranged alongside of each other,

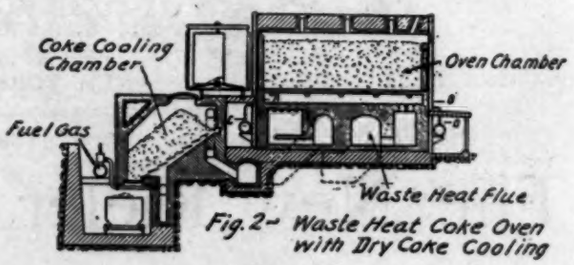


Figure 2

simultaneously discharged, but when the coke oven plant is properly regulated there is always at least six to eight hours of time and more available between the discharge of neighboring chambers. The chamber which is filled with incandescent coke is tightly closed by means of covers at the top and the bottom. Then producer gas is allowed to enter the chambers from a main which is arranged alongside them. The producer gas passes through the incandescent coke in a fine stream and is removed at the upper end of the chamber and led thence to a common main, which collects this gas from all the chambers in the installation. The gas is merely allowed to pass through the chamber for so long a time as is necessary to effect complete cooling of the coke. After the coke in the chamber has been properly cooled, the gas entrance and exit valves are closed.

Inasmuch as ovens are constantly being discharged, several chambers are always in the stage of coke cooling, and the result is that there is a constant supply of hot gases being furnished for heating the waste heat boilers and the chambers themselves. The amount of heat supplied is uniform, and this refers as well to the temperature of the producer gas.

Removing the Cooled Coke

The coke, which has been cooled in the chambers, is removed therefrom and allowed to fall into carts which are arranged below the lower opening of the chambers. The coke is thus removed, carted to the proper storage point in the works and passed through a sieve in order to remove the fine particles.

If it happens for one reason or another that one of the coke cooling chambers cannot be used for this purpose, due to the necessity of making repairs, then the coke can be directly removed from the chamber and carried to a reserve cooling chamber which is located at one end of the battery of ovens, the transportation being effected by means of suitable carts and the like. The coke is cooled in this chamber. It is of course always possible to

abandon the dry cooling method in an emergency and quench the coke by spraying cold water on it.

The waste heat boiler is shown in figure 3. It is of the double, inclined tube-bank type. It has a heating surface of seven hundred square meters and

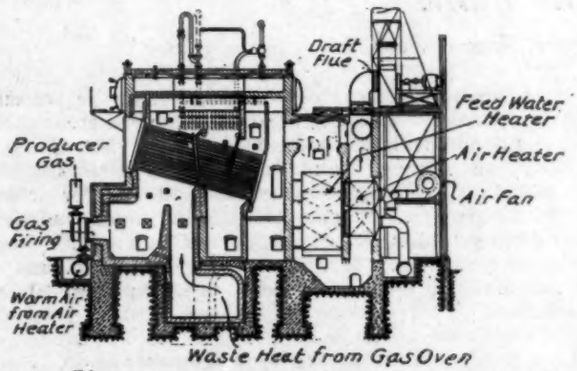


Fig. 3. Double Inclined Tube Boiler

Figure 3

is provided with a superheater and a feed water heater. The two halves of the boiler should produce steam at a pressure of twenty atmospheres and with 390 degrees C. superheat with a heat generation of 718 kilogram calories per kilogram. This is accomplished with an hourly consumption of 17,100 cubic meters of waste gases (figured at zero degrees C. and 760 millimeters pressure) at a temperature of 1025 or higher and with an hourly consumption of 17,100 cubic meters of waste gases (also figured at zero degrees C. and 760 millimeters pressure) at a temperature of 250 degrees C. and a thermal capacity of 1,185 kilogram calories at zero degrees C. and 760 millimeters pressure. Both the waste gases and the fresh gas are free from moisture. Both halves of the boiler, being considered together, recover eighty-one per cent of the heat that is containd in the mixture of waste and fresh gases that are fed to them and convert that heat into the form of steam.

Operation of Waste Heat Boiler

The figures 17,100 cubic meters of waste gases and 5,000 cubic meters of fresh gas represent the normal operation of the apparatus. The maximum output of the waste heat boiler is 20,500 kilograms of steam with an approximate efficiency of 78 per cent. Additional quantities of producer gas of approximately 1,100 kilogram calories heat value per cubic meter at zero degrees C. and 760 millimeters pressure, and with a temperature of approximately 25 degrees C., are available for the maximum operation of the boilers.

The waste heat boiler is so constructed that each half can be operated with waste gases or fresh gas. It is therefore possible to utilize the waste gases that are derived from the battery of coke ovens for the production of steam, even when the other half of the boiler is shut down for the purpose of repairing or cleaning. The steam which is produced in the waste heat boiler is fed into the power house, where it is employed to generate electricity.

Another part of the installation is the producer gas plant. This plant consists of four producers. The through-put of coke in the producer amounts to 20,000 kilograms of coke within a period of twenty-four hours and the total output of gas is 4.425 cubic meters, figured at zero degrees C. and 760 millimeters pressure. This figure is per kilogram of coke which has a heating value of 6,500 kilogram calories. The heating value of the producer gas is 1,130 kilogram calories per cubic meter at zero degrees C. and 760 millimeters pressure.

Thermal Efficiency of Operation

The thermal efficiency of the operation is 84.7 per cent, and this is obtained in the following manner. The cubic meters of gas are multiplied by its lower heating value and this figure is added to the steam excess from the cooling jacket and the steam from the waste heat boiler. This figure is then divided by the sum of the heat in the coke, obtained by multiplying the kilograms of coke used by the minimum heating value of the coke, and the heat corresponding to energy consumption in the driving of the blowers and the grate of the boiler.

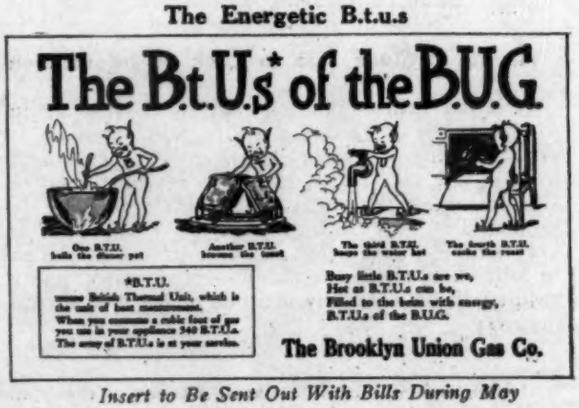
The electrical energy which is used for this purpose can be readily converted into terms of heat energy. The steam that comes from the producer-waste heat boiler is saturated steam of eight atmospheres pressure. It is made at the rate of 1,630 kilograms per hour and is employed for driving the gas pumps and also for the operation of the ammonia and benzol plants and for the distillation of tars. When the correct figures are inserted in the efficiency formula, the following is obtained:

$$\frac{4.425 \text{ cm.} \times 1130 \text{ kcal.} + (531.6 - 256.8) \text{ kcal.} + 276 \text{ kcal.}}{1 \text{ kg.} \times 6{,}500 \text{ kcal.} + 22.2 \text{ kcal.}}$$

$$= 84.7 \text{ per cent.}$$

¤ ¤ ¤ ¤

The Energetic B.t.u.s


The B.t.U.s* of the B.U.G.
*B.T.U.
Busy little B.T.U.s are we,
Hot as B.T.U.s can be,
Filled to the brim with energy,
B.T.U.s of the B.U.G.
The Brooklyn Union Gas Co.

Insert to Be Sent Out With Bills During May

How One Company Improved Its Public Relations*

Stressing the human interest side of the gas industry

Miss Julie Pailet

New Orleans Public Service, New Orleans, La.

NEXT to God and religion, the utilities play the most important role in our lives. If there were no utilities, living in big cities would be impossible, and today's civilization would be no further advanced than that of our Pilgrim forefathers. And yet, for a good many years, in spite of all this, the purveyors of light, heat and transportation have found it a hard fight to even keep their feet on solid ground and walk without wavering. They have been the victims of every scheming politician, and they have been abused, regulated and starved financially, until many of them gave up the struggle, latched the front door and hung out the crepe. But, as usual, it was a survival of the fittest, and those of us who have struggled through the dark ages are beginning to see the light, for we have learned through bitter experience that on the side of the ledger marked "assets" that it is essential to have intangible ones as well as material ones, and the greatest asset in the Utility Industry today is GOOD WILL.

Your Chairman of Papers tells me that the members of this Association are most anxious to hear about my company's program in educating the public. Somehow, the term "educating the public" does not particularly appeal to me. Do you not think it wiser to take it for granted that the public is already educated? Does this not present a study in psychology? Would it not be better to adopt the term "informing the public"? Of course, we know that it is really a form of education to teach our customers the fundamentals of our business, but experience has taught me that they are not so keen to acknowledge that they are being educated—rather, they are merely being informed. So, in accordance with our usual custom of giving the public the benefit of the doubt, we shall let it go at that, and call this new phase of public relations—"informing the public."

Hostile Attitude Due to Lack of Information

It is my firm conviction that the hostile attitude of the public toward the utility was based on lack of information. Americans are good sports and believe in fair play and it stands to reason that if they are presented with the truth, they will be fair-minded in their dealings with the Utility. It is a very simple prescription and the directions are easy to follow:—Inform the public—consistently, and the result will be a healthy attitude of mind toward our industry.

Formerly the attitude was to go after the present-day patron. We could see no further, whereas there was a much bigger question involved, that of training the younger mind in the right direction, the plan that is conceded to be the right way for proper adult growth. With this idea in mind, the New Orleans Public Service, Inc., inaugurated its work in the schools. Now, it shall be my pleasure to outline just how this school program was carried out.

Preliminary Arrangements

The early part of last year, after speaking at a meeting of the local school principals in behalf of a certain civic campaign, we received permission from the Superintendent of Schools to appear before classes in the interest of "Public Service." Attractive invitations were issued to all the Public, Parochial and Private Schools and Colleges, inviting them to visit our various plants, assuring them that our company was ever eager to promote constructive projects. We further stated that we would transport the pupils to and from the schools in our up-to-date busses, and assured them that it was our desire to serve them.

In the interim, I visited each of the plants with the engineers in charge, outlined the routes, appointed capable guides and acquired a fundamental knowledge of the various technicalities, for I fully realized that the pupils would expect me to answer their numerous questions.

A few days after issuing the invitations, the response from the schools was beyond all expectations.

On March 10, 1926, the campaign was officially launched and lasted throughout the school term. It was necessary to resume the work this year to take care of all the schools, and from present indications it shall continue throughout this school term also.

We make a trip a day—however, there were times when the schedule was very heavy, and we made two trips a day. Think of it, every day our company has an average of about seventy-five new friends, and it is needless to say that these pupils carry the message home, and find me the parent who will not listen to his own child. The teachers and principals, too, become our friends and we DO know the amount of influence they can exert.

Perhaps you would like to know just how these trips are handled.

We go to a school with two buses, and I give the pupils a talk on the policy of the company, and give them an outline of what they will see on the trip. Then they are taken to the main power house

*Read at the Nineteenth Annual Meeting of the Southern Gas Assn., Atlanta, Ga., April 19, 20, 21 and 22, 1927.

of the company, known as our Market Street Generating Station, then to the gas plant, and then to the training school for motormen and conductors. They are told that the main power house has a generating capacity of 78,000 K. W.'s, and to help them visualize this, they are asked to imagine 104,000 wild horses all trained and harnessed to serve them. They are also impressed with the fact that a new 30,000 K. W. unit is being installed to meet the needs of a growing city. At the gas plant, they are explained the functions of the generator, carburetter and superheater; how the condenser system cools the gas; how the Cottrell Electric Precipitator throws off the impurities in the gas; how the meters are tested and proven for the customer's protection as well as the company's; and that on a cold day it is necessary that we use 250 tons of coke and 75,000 gallons of oil approximately, in order to meet the local requirements. To strike the human-interest note, they are told that James H. Caldwell built the first gas plant in New Orleans in 1835, and there it still stands, the same old iron gates guarding the entrance and the same thick brick walls surrounding the old square. These are accounted for by the fact that it was operated by slaves. In 1860, it is said the company carried on its books $53,000 of "live assets" in slaves. It might interest you to know that our plant still occupies the same location; however, we are all slaves now to the demands of the public.

At the training school the pupils are explained that there are only two troubles that can happen to an electrical circuit—an open circuit or a ground, and that the motorman is taught to locate the trouble by a process of elimination. They are told that the trainmen go through this course of instruction to avoid unnecessary tie-ups on the line, and to render to the public a service as near to perfection as it is humanly possible to give.

From the training school the pupils are transported back to the schools in the buses, or are let off at convenient corners, at the same time imbuing them with the idea that this is just "another public service." By the time the trip is ended, the pupils enthusiastically cheer the company and it goes without saying that all the people in the immediate vicinity are well aware that the Public Service is on the map.

Prizes for Essays

The pupils are encouraged to ask questions to arouse their interest—however, they do not need much encouragement, as we are now fostering an essay contest and awarding $300 in gold to the winners. So far, the papers received are truly a revelation and are conclusive proof of the theory that the public is, after all, fair-minded.

It might interest you to know that this year we are carrying insurance for the pupils, and based on our performance of last year, we have been given the benefit of a very attractive rate. However, we do not advertise the fact that this insurance is being carried. That would be unwise.

The school work does not cover the complete Public Relations Program of our company. There are other activities and I shall just sum them up briefly.

Last summer we did extensive work in the local playgrounds, reaching all creeds and colors. We promoted physical efficiency tests and rewarded the ones who qualified with medals. We also awarded three loving cups to the playgrounds having the largest number of entries. The campaign ended with a big party in the Council Chamber of the City Hall, and a film, which was shown in all the local play-houses, was taken of the whole occasion. The mayor and other officials highly praised the good work of our company, and, after all, it is the desire of all utility companies to keep themselves in the good graces of the city fathers.

Women's Public Relations Committee

In our company we have a Women's Public Relations Committee. This idea was fostered by the National Electric Light Association, and I am glad to say that your association now boasts of such a committee. Our committee is taught the fundamentals of the industry, and every possible method to improve public relation. They have organized a Glee Club which plays for business clubs, social functions, and over radio. This is excellent publicity. At present, special stress is being laid upon the appliance program, and I am going to conduct a miniature school in the company offices to familiarize the girls with the various household appliances on the market. Then I shall go into the local Women's Clubs and give talks and demonstrations. It might also interest you to know that I leave no opportunity pass me when there is a civic campaign in progress. This is a splendid way of assisting your company as well as your city.

You know folks, it's a great game—asking the friendship of people who once showed only animosity toward us. It's well worth the fight. All of which goes to prove that this movement of good public relations is no longer just a handy catchphrase, but an indispensable asset that is within our reach.

It behooves each one of us to impress upon the public that the employees and officials of our company are honest-to-goodness human beings and are not shrouded in mystery. Let them know that we go to the movies, eat potatoes, and read Andy Gump, just as they do. Let us learn the value of a smile, the art of friendliness and courtesy, and, above all, the importance of loyalty to one's company as well as to one's self. It is just as important that we exercise these qualities as well as perform our daily routine duties. When you work for a company, give to it the best that's in you. Remember, your company is giving you your bread and your butter, and sometimes, your pudding—why, it's all up to you.

Let us boost our utilities—our gas companies. Wake people up to the fact that you have an indus-

(Concluded on page 18)

Small Warm Air Installations

High gas bill usually due to readily explainable circumstances

J. R. Gibbins

House Heating Engineer, Worcester Gas Light Co.

AS the house heating load develops, there will be a greater proportion of smaller installations. The average owner of a small house is affected more by a fluctuation in his gas bill than the larger property owner. It is necessary, therefore, to have all the pertinent facts available when the customer's bill shows a seemingly abnormal expense of operation.

House Heated With Warm Air Heater

The customer seldom analyzes or investigates extensively. The amount of money due is uppermost in their minds, and when it appears exorbitant they naturally ask, "Why?" There is always a legitimate reason or combination of causes. These factors should be carefully and diligently sought out, so that the explanation will be complete and convincing. Occasionally the fault may be in the heater or the gas meter. More than likely the larger gas bill is justified by greater gas consumption caused by weather conditions, longer period of operation or higher settings of thermostat. It may be due to carelessness in leaving doors, windows or fireplaces open. Perhaps, during the previous period, some form of auxiliary heat was used. In any case, a prompt investigation should be made, so that the customer will not hold a wrong impression of operating expense.

Setting Prospect Straight

Frequently a prospective buyer will say "Nothing doing. George Blank told me he paid over $100 a month for heat! I run my heater nine months and a heating bill of $900 is out of sight." The explanation that $100 covered the peak month of January and that October's bill was only $28, while the whole expense for the year will be only $510, puts the proposition in a new light.

A typical case is represented in figures taken from a warm air heater in a small house shown in the illustration with 10,694 cubic feet of space and the equivalent of 260 square feet of Mills radiation.

Nov. 30-Dec. 30	61,600 cu. ft.	30 days	$50.93—1239DD—.041
Dec. 30-Jan. 29	56,500 cu. ft.	30 days	46.85—1217 —.038
Jan. 29-Mar. 7	64,500 cu. ft.	36 days	53.25—1300 —.041

This customer paid a bill for $50.93 covering December, then one for $46.85 for January. The next month was mild and the natural assumption was to expect a bill lower than the previous one. There was much surprise and some suspicion when a bill for $53.25 was received. A check-up of daily temperatures showed the following comparisons:

		A. G. A. Formula	Actual Cost	Cost per DD
Nov. 30-Dec. 30	1239DD	$51.24	$50.93	.041
Dec. 30-Jan. 29	1217	50.36	46.85	.038
Jan. 29-Mar. 7*	1300	53.69	53.25	.041
		$155.29	$151.03	

The reason for the $53.25 bill was fully explained to this customer. This required a discussion of outside temperatures wind, degree days and methods of meter reading. When the discussion was completed the customer was satisfied that there had been no overcharge and that the heating bill for the season would be well within the estimate.

During a recent survey of conditions under which a house heating boiler was operating, it was discovered that the thermostat was frequently set to a temperature of 74 degrees. The outside door leading to the kitchen was occasionally left open. As the other doors on the floor were also left open, the heat loss was abnormal. In addition to this, the piping layout was faulty. These conditions combined to throw an excessive load on the boiler, and the result was high gas bills.

It is such conditions that are not always apparent when the original survey is made prior to a sale. Every effort should be made to anticipate wrong methods or to see that every possible correction is made. In this way we can avoid destructive criticism and we can develop good-will.

*The period, from March 7 to April 2, showed a consumption of 30,500 cu. ft. of gas at a cost of $26.05. The estimated cost of operating for the year was put at $261.17. It now appears that the total bill will be about $218.00.

The Water Heating Load--Its Values and Possibilities*

How to secure it

F. A. Lemke
General Manager Humphrey Co., Kalamazoo, Mich.

THIS subject impresses me as much like Mark Twain's reference to the weather—"Lots has been said about it, but not so much done." In fact, so much has been said about gas water heaters, not only as household conveniences, but as worthwhile outlets for larger gas sales, that it seems difficult to propound anything new. My remarks, therefore, must largely be a review of many things that have been heard from time to time in the past.

To take up the first point—the value of this business. There are various kinds of gas water heaters, with an estimated annual gas consumption procurable from each type that, for the purposes of this paper, can be listed as follows:

	Cu. ft. per annum
Tank water heaters	6,000
Instantaneous bath water heaters	12,000
Instantaneous automatic water heaters	36,000
Automatic storage heaters	42,000
Multi coil automatic storage systems— Large figures according to size	

Possibilities

Now about the possibilities—tank water heaters are frequently described as a good introduction of gas-heated hot water to homes that have not previously had it, but question is often raised as to whether that idea is sound. Without doubt, many homes today are laboring with a tank water heater, putting up with its limited service and with a lack of satisfaction, and bringing the gas company no worthwhile profit in gas sales, simply because they were sold a tank water heater instead of being sold a better type of water heating equipment. Some homes, because of financial limitations, perhaps can buy nothing more useful than a tank water heater, and possibly can even afford the operating cost of nothing better. Installations in such homes, through adding to only a small extent to the gas otherwise used, are perhaps profitable in a small way. But get this: Of all the gas water heaters in use today, approximately 90 per cent are tank water heaters; only 10 per cent approximately are users of automatic water heaters. Certainly one cannot be astray in claiming a big percentage of this army of tank water heater users—possibly 50 per cent of them—represent automatic gas water heater prospects who are unenthusiastic over tank water heater service, who really want and will buy automatic water heater service because it matches the other comforts and conveniences in their homes—in fact, excelling most of these other comforts and conveniences in service, usefulness, cheapness of maintenance, length of useful life, and purchase price.

Instantaneous Bathroom Heaters Long on Market

Instantaneous bathroom heaters have been on the market too long and are too well known to need any special comment. Large quantities of them are in use serving cheaply and pleasingly to the extent of their capabilities.

It may be fairly said, too, that instantaneous automatic water heaters have been too long in the market and are too well known to need special comment. They furnish a truly unlimited supply of hot water, and on many jobs with large requirements they are the only type of equipment that serves adequately from all points of view. Their value from the load building standpoint, 3,000 cu. ft. per month, or 36,000 cu. ft. per year, is probably a minimum statement; the average gas consumption from their use probably runs substantially above this figure.

Automatic storage systems, like instantaneous automatic water heaters, are made in various sizes for different volumes of need. Thirty-five hundred cubic feet per month or forty-two thousand cubic feet per year is undoubtedly a low average estimate of their load building value in residences.

Large volume of water heating for hotels, apartments, office buildings and elsewhere, as handled by multi-coil automatic storage systems of the proper size for each job, has been pleasingly sold in constantly increasing volume. This type of business is particularly splendid. The load factors are usually good and the volume of consumption secured from such installations frequently runs into very, very large figures.

Usually the objection attached to some classes of business of seasonableness, of being good during only part of the year, is lacking, but even if it is only a summer load, it can be of large help in evening the curve of the winter heating load.

How Load Building Figures Accumulate

Now among the foregoing, what is the volume market from the load building standpoint? The answer, of course, is in automatic hot water service in the home. The number of homes having that service today, in spite of the many years this business has been sought and the activity of different factors of the business in seeking it, is woefully small. The opportunity is accordingly large. The possibilities and probabilities of good efforts securing this business are today better than ever. How load building figures accumulate at a very splendid rate when you sell automatic water heaters is well

*Presented at the Mid-West Gas Assn. Convention, St. Paul, Minn., April 20, 21 and 22, 1927.

exemplified by the following table, which uses 42,000 cu. ft. per annum as a figuring basis:

25	means	1,050,000	cu.	ft.	yearly	additional
50	"	2,100,000	"	"	"	"
100	"	4,200,000	"	"	"	"
150	"	6,300,000	"	"	"	"
200	"	8,400,000	"	"	"	"
300	"	12,600,000	"	"	"	"
400	"	16,800,000	"	"	"	"
500	"	21,000,000	"	"	"	"

Certainly these are luscious figures that make the profit and loss account stand up and look both interested in and hungry for this business.

Business Should Be Sought Vigorously

All who have studied this question admit the difficulty of finding any other kind of business possessing so much steadiness, so little likelihood of being superseded by any other kind of fuel—business in which the load factors are so good, and which requires so little, if any, additional capital investment. That this business should be sought and sought vigorously and steadily seems almost self-evident. Changes in living conditions have influenced the use of gas at other points and it appears there is no other kind of business than this automatic gas water heater business that promises to so largely and profitably not only offset those effects, but to do far more than that and to do it in a substantial, profitable fashion.

Statistics as to the exact size of the real market cannot be had. About the best ones available indicate that of gas using homes there are about some seven million with a gas stove but without a gas water heater of any kind. There of itself is a vast market. Surveys and information otherwise secured indicate that of the homes possessing a gas water heater, about 90 per cent have only a tank water heater which, in this day and age, fails to match the desires of the American people for service, comfort and convenience. This leaves in this group, as before stated, only about 10 per cent of the present gas water heater equipped homes possessed of an automatic gas water heater, which certainly is the kind of equipment rendering service comparable to other owned and used conveniences equally or more costly yet of less usefulness but of wider sale.

There in those two groups—in the vast number of gas using homes without a gas water heater of any kind, and in the great number of dissatisfied tank water heater equipped homes—we have a picture of some big automatic water heater sales possibilities.

Why Does Not This Business Increase Faster?

With the load building factors so attractive, as they admittedly are, and with the sales possibilities what they are, why hasn't this business been secured in greater volume? Study of activities in water heater promotion, advertising and selling shows that after a fashion every possible expedient has been employed to secure business. Established manufacturers have plowed back their earnings into the promotion of this business, and the extent of the resulting activities to foster increased sales has been most unusual. Why is it, therefore, that the gas water heater business is only of such volume as it is instead of being, as it apparently ought to be, many times its present volume and value?

Perhaps much of the failure to capture this splendid business in a bigger way is due to the gas business having been sufficiently easy and prosperous in the past to lack the urge to realize these possibilities in a big way. Perhaps that's so, perhaps it isn't. The fact remains, though, that constant, consistent, persistent efforts behind many other things of less usefulness but of larger sale have not been behind gas water heaters.

How can this business be secured? To my mind, no magic is needed to capture this business in a big way. On the contrary, getting it in that fashion means employing only simple, well-understood practices.

Someone Must Show Keen Interest

Suppose, first of all, we recognize there must be someone with a definite and keen interest in water heater selling to see that it be kept after steadily all the while, instead of only in a hit-and-miss, now-and-then fashion. That deeply interested one might be the general manager, the sales manager, or even a water heater department manager. But there must be a definite, keen and steady interest somwhere on the part of somebody.

Then suppose we have that one see to it that the entire organization appreciates company progress and prosperity, demand the public be made to know automatic gas water heaters, their service, convenience and desirability, that they may be induced to buy. Then the use of all those promotion, advertising, display and selling stunts and wrinkles that are so generally and well known will unquestionably bring the desired results.

Everyone recognizes the importance of giving gas water heaters adequate, prominent spotlight display, frequent window display and, in all the words can be made to mean, of making the business a major and continuous effort.

There is just one point that perhaps should be mentioned right here. Sell automatic gas water heaters on free trial. Doing so will aid worthy efforts to get a largely increased business, and the hazard of unjustifiable expense feared by many in selling on free trial is proven by experience not to exist.

The point is often raised, "Our men don't know water heaters." Right there is where the co-operation of good manufacturers proves worth while. By factory and field schools, by correspondence, by contact with district salesmen and other things that are done, your men can be posted and can be coached from time to time by the recurring opportunities for review, and for discussion of problems arising in the case of large volume water heating jobs that might

puzzle the average salesman not often having to do with such jobs.

Gas Bill Bogie

Another point frequently referred to is the gas bill bogie. The fear of high gas bills strikes me as more a mental condition than a reality. People can't get something for nothing; they know it, and they don't expect it. That is true whether they burn gas or something else. Wouldn't it be a good idea to build up such an interest in gas, such an appreciation of all the benefits procurable from its use—but only from its use—as would cause you to be constantly sought out by your gas users desiring to have additional ways of using more gas pointed out to them so they could realize in a bigger way the benefits obtainable through and only through its use. A family with a gas bill of $1.00 or $1.50 has no reason to be particularly appreciative of the availability of gas because they do not use enough of it to realize the benefits from its use in a big enough fashion. But a family with a gas bill of several times such size has just that much reason for appreciating the existence of gas because the benefits from its use are directly in proportion to the amount used.

Many people have the mistaken idea that a furnace hot water coil gives them something for nothing, but, as the old adage says, "You can't eat your cake and have it, too," and the idea is a mistaken one.

Data and Figures Should Be Gathered

A definite suggestion about meeting the gas problem is: Gather figures. It is a comparatively simple matter to install meters on a number of jobs that will enable you to find out exactly the amount of hot water used and the exact gas consumption; then to break down those figures into small parts showing the monthly operating cost per person and the weekly and even daily operating cost per person. Experience has shown that this eliminates doubt and question and exaggeration. Care, of course, should always be exercised that buyers are not led to expect something for nothing.

Now, then, to sum up: There are water heaters available for the comfort and convenience of American homes and other institutions. These water heaters render a needed service. In doing it they can tremendously increase the use of gas for fuel. To get this business, make it a major and continuous effort, using all the promotion, advertising and selling stunts that have been successfully put behind other things.

Do this constantly and persistently and the business will come—it will come steadily and in volume.

Mid-West Gas Association Holds Annual Convention

Brief history of association which convened for the first time outside of the state of Iowa

The Mid-West Gas Association will make a special effort during the coming year to secure the installation in home economics departments of schools and colleges of modern gas appliances, according to a decision of the executive council at the association's annual convention, held in St. Paul, Minn., April 20, 21 and 22.

Surveys showed that in many schools the equipment was out of date and students were not being given the benefit of instruction in the use of new appliances.

The Mid-West Gas Association was formerly the Iowa District Gas Association. Originally it took in the State of Iowa only. It now embraces also the States of Minnesota, Nebraska, North Dakota and South Dakota. This was the first convention held outside of Iowa. The attendance was about 300.

The convention was opened with an address of welcome by Hon. L. C. Hodgson, Mayor of St. Paul. The welcome on the part of the gas men of Minnesota was given by G. O. House, manager of the Northern States Power Company at St. Paul. H. B. Maynard, past president of the Iowa District Gas Association, made the response.

Reports of Affiliation Representatives

President Frank S. Edge, of Grinnell, Iowa, called for reports of affiliation representatives. These were made as follows:

Technical Section—C. T. Williams, Sioux City, Ia.

Manufacturers' Section—W. E. Derwent, Rockford, Ill.

Commercial Section—F. C. Hoffmann, St. Paul, Minn.

Advertising Section—Joe Carmichael, Des Moines, Iowa.

Accounting Section—A. T. Pleune, Cedar Rapids, Iowa.

Industrial Section—R. H. Luscombe, Davenport, Iowa.

Metermen's Short Course—R. L. Klar, Des Moines, Iowa.

At Thursday's Session W. E. Derwent, of the Roper Corporation, Rockford, Ill., read a paper on "Selling: To Secure More Gas Sales per Residential Customer—To Build Load." F. A. Lemke, of the Humphrey Company, Kalamazoo, Mich., read a paper

on "The Water Heating Load: Its Value and Possibilities—How to Secure It."

Dean Guy Stanton Ford of the University of Minnesota delivered an address on "New Meters in Modern Business," dealing with public relations. D. J. Young, of the Young-Whitwell Gas Process Company, Tacoma, Wash., read a paper on "Gas Refrigeration—Its Present Status, Its Future, Its Practical Application." R. J. Canniff, chairman of the Blue Star Committee of the American Gas Association, led a discussion on "The Economics of Appliance Merchandising."

In the evening the members of the association were the guests of the Northern States Power Company at a banquet. George E. Whitwell, general sales manager for the Philadelphia Company, Pittsburgh, Pa., presided as master of ceremonies. Alexander Forward, managing director of the American Gas Association, made the address of the evening. A splendid entertainment program was presented by employees of the Northern States Power Company.

C. A. Nash presided at Friday's session. Glen C. Carnahan, People's Gas Light & Coke Company, Chicago, Ill., discussed "House Heating by Gas." Hon. Frank Milhollan, president of the Board of Railway Commissioners of North Dakota, delivered an address on the subject, "Applying Reason to Public Utility Problems."

Home Service Discussed

At the afternoon session Mrs. Katherine Delaney, Home Service Director of the Wisconsin Public Service Company, Green Bay, Wis., discussed "Practical Home Service—How It Increases Gas Sales in the Home—Its Application in Smaller Towns." Miss Wylie McNeal, chief of the Division of Home Economics of the University of Minnesota, read a paper on "Home Economics as Taught in the Schools."

Sam G. Pugsley, of the George M. Clark Company, Chicago, read a paper on "How the Gas Company Should Co-operate with the Manufacturer in Modernizing the Home Economics Equipment in the Schools."

Officers elected were:

President—C. A. Nash, Davenport, Iowa.

First Vice-President—H. R. Sterrett, Des Moines, Iowa.

Second Vice-President—Louis Stein, Minneapolis, Minn.

Secretary-Treasurer—A. W. Schmitt, Des Moines, Iowa.

Members of the Executive Council—C. H. Meyers, Iowa City, Iowa; E. H. Vieregg, Grand Island, Neb.; J. F. McGuire, Fargo, N. D.; H. R. Stephenson, Sioux City, Iowa; F. C. Hoffmann, St. Paul, Minn.; H. J. Butler, Council Bluffs, Iowa.

Affiliation Representatives: Technical Section—E. L. Fischer, Davenport, Iowa; Manufacturers' Section—R. J. Canniff, Chicago, Ill.; Commercial Section—Stanley Taber, Lincoln, Neb.; Accounting Section, R. B. Searing, Sioux City, Iowa; Industrial Section—C. F. A. Schuldt, St. Paul, Minn.

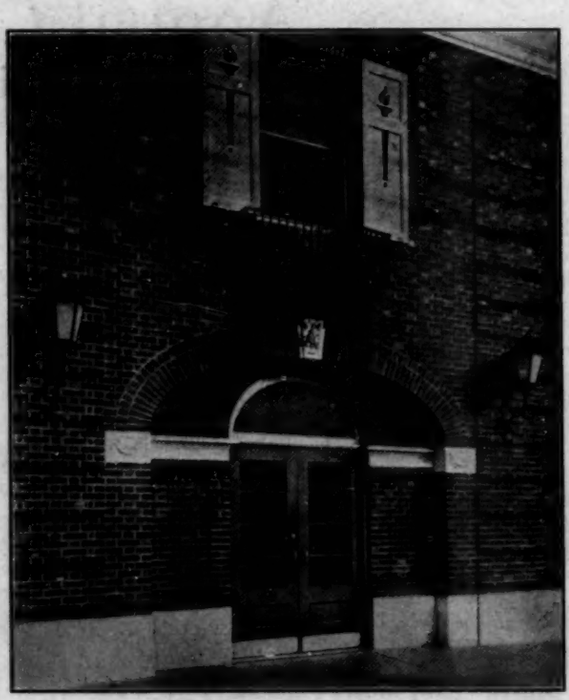
MISS FREDEEN GETTING RESULTS FOR HOME SERVICE DEPARTMENT OF PEOPLE'S GAS LIGHT AND COKE CO.

Miss Fredeen for some time has been contributing articles with recipes to the Swedish Tribune-News. This newspaper has wide distribution and it is not unusual for Miss Fredeen to get requests and appreciation from women far away, as she did last week from a woman in Tacoma, Wash.

One of the most satisfactory ways of demonstrating for a woman's club is to get them to come as a group to the regular Home Service auditorium. Recently the Scanlan Health Club visited Miss Fredeen, and the very nice letter which their secretary wrote her assures her of their interest and desire to come again.

Bunco, five hundred and dancing made the graduating evening a merry one for Miss Fredeen's evening class. A local music store was kind enough to loan an automatic electric victrola for the occasion. One hundred and eighty-five guests were there and Miss Fredeen expresses gratitude to Mr. Larkin and the men of the store for the wonderful way in which they helped her prepare this evening of entertainment for the people of Roseland.

In line with the policy which Mrs. Peterson has started in giving special classes to groups of colored women, Miss Fredeen has started a special morning certificate class in one of the local colored churches. From the reports she receives the women are very much interested and are faithfully cooking at home the foods she demonstrates.



An Interesting Doorway. Brooklyn Borough Gas Co.

Short Spring Season Indicated

Credit situation puzzles merchants and manufacturers--- outlook promising

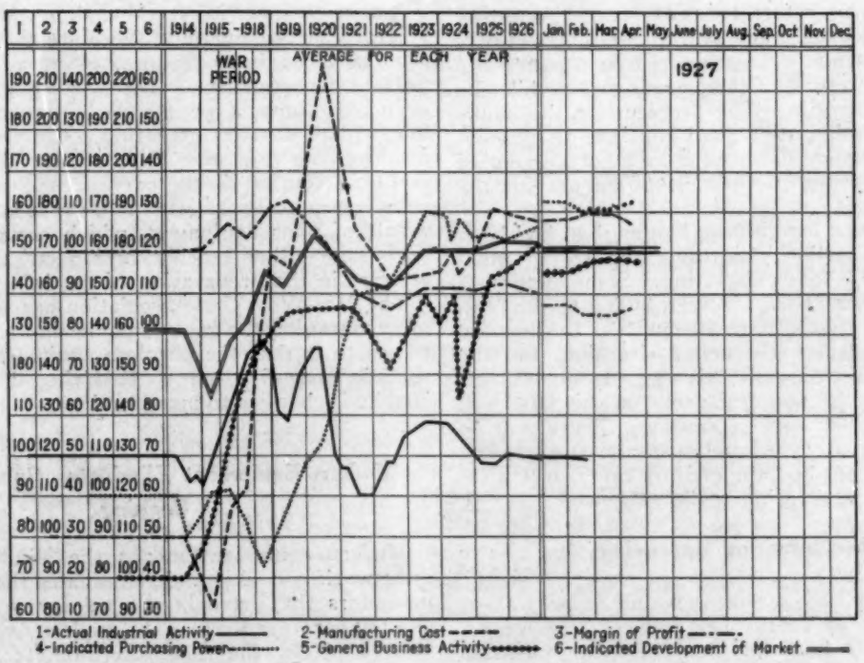
Walter Alwyn-Schmidt

THE nervous tension which has characterized the market during the last few months begins to wear off. February statistics now completely available are in bearing with the general impression of business men that the year has not opened quite as auspiciously as had been expected upon earlier indications. But while facts no doubt seem to give some support to the uneasiness felt all over the market, there is no denying that business takes the situation more to heart than is necessary. Business most certainly is not quite as bad as it is made out to be. On the contrary, there is much in the present situation for which we have reason to be thankful.

What, for instance, about the money situation? Do we really suffer from stringency of cash? The contrary seems to be the case, and there is certainly all the money available to take care of the ordinary needs of the market and for industrial investments. But—and this most likely offers a solution for this particular problem—money somehow is looking for greater security. This is only natural. It is the direct outcome of the nervous disposition of the market. Merchants and manufacturers can hardly expect capital to be enthusiastic about their affairs if they themselves are inclined to take a pessimistic view of the prospects of the market. Capital, in fact, appears to have been more enterprising than could have been expected under the circumstances.

Significance of Federal Reserve System Not Fully Understood

Merchants and manufacturers have not yet learned to recognize the full significance of the Federal Reserve System and the final organization of the nation's business resulting from it. True, even the best system of rediscounting is no complete protection against a panic, but their occurrence is most unlikely with the whole monetary force of the country standing almost behind each individual bank. Runs upon banks under these conditions are reduced to mere incidents as evidenced by more recent experiences in certain sections of the country including New York. Overspeculation, unprofitable investments, or the dishonesty of employees will weaken the confidence of the deposit holders, but such iso-



lated happenings have nothing to do with the financial strength of the country. They do not indicate anything but that banks after all are nothing but business enterprises which may be managed just as inefficiently in certain cases as a shoe factory or a grocery shop. Runs upon banks and bank failures are an indication of real trouble only when they occur all over the country and when they affect not only small but large institutions. We are still very far from such a weakening of the general confidence, and the merchant who finds his credit curtailed by his bank had better look into his own affairs for a reason instead of expostulating on the unsatisfactory state of the country.

Curtailing of Credit Based on Valid Reasons

There are, of course, very good and valid reasons why banks should desire to curtail their credit volume at the present time. One of them—and possibly a very important one—is the shrinkage in the value of the collateral offered by the borrowers. Notwithstanding the crying need for a stabilization of prices upon a slightly higher level, manufacturers and merchants still persist upon a policy of lowering prices. Every such cut reduces automatically the value of the collateral as expressed in the monetary value of the stocks of merchandise carried by manufacturers and dealers. This refers to newly made goods, as well as to goods bought and paid for. Greater efforts and a larger turnover are required to produce the same monetary return. Credit needs grow while the basis of credit shrinks. The problem for the banks just now is whether they shall continue to support the present tendency or check it by a curtailment of credits and a raising of their requirements for the issuance of credit.

Winter has been hanging on longer than had been expected upon earlier indications and spring business, therefore, is late in starting. Some such condition, of course, had been foreseen owing to the lateness of Easter. Luckily, retail business has learned better how to deal with such a situation, and the system of hand-to-mouth buying, so much complained of lately by manufacturers, in this case will help to avoid much serious trouble. There will be less losses from overstocking in seasonal goods and the market will not be hampered by carry-over merchandise when once spring really sets in.

Labor Situation Improving

As it is, the spring season is bound to be a short one and will cover at the best only a few weeks. This does not say, however, that the spring business will not be a profitable one. The short industrial depression at the beginning of the present year has not been of long enough duration to cause a serious weakening in the earning power of the wage earner and salaried man. Employment is somewhat below normal, but the labor situation is improving very rapidly and the comparatively high wage scale enjoyed by industrial labor during the present time make short interruptions in the employment less noticeable in the national purchasing strength than in the past.

So there is no reason why business should not be very good, with every prospect that its new force should carry it right into the summer upon an ever-increasing level.

This opinion apparently is shared by all the best judges of the market. It certainly finds very vivid expression in the forecasting line of the chart accompanying this article. This, although extremely sensitive in the past, has hardly wavered since the beginning of the year, indicating a continued steadiness in the condition of the market.

☼ ☼ ☼ ☼

MODERNIZING HOME ECONOMIC EQUIPMENT IN SCHOOLS AND COLLEGES*

Good Equipment Will Make for Better Relations and More Business

By Sam G. Pugsley,

George M. Clark Co., Chicago, Ill.

SOMEONE wisely said that the schools and colleges are service stations along the highways of life. Unfortunately, there are a lot of flat tires who haven't taken advantage of one of the most important departments of these service stations. Many a ruined stomach could have been saved if the fair one had paid strict attention to instructions given in the home economic class room. It isn't always lack of attention on the part of the student that results in a poor cook. It is in a great many cases the result of poor equipment, which certainly will not encourage either teacher or student to take much interest in the preparation of meals.

The Mid-West Gas Association has seen the value of encouraging the gas companies in their association to see to it that the obsolete equipment now being used in sixty-five per cent of the schools in their district is changed to more modern, up-to-date equipment.

Modern Equipment Eliminates Guesswork in Cooking

Modern equipment means the elimination of all guesswork in cooking. It eliminates the use of thermometers that have been used for years for time and temperature work. The modern oven heat regulator replaces the heat thermometer, giving the teacher more time for other instructions. Modern ovens equipped with oven heat regulators do away with the use of portable ovens that are used on the top of small hotplates. The use of portable ovens on hotplates is not only a dangerous method of baking,

(Concluded on page 469)

*Read at Annual Convention, Mid-West Gas Association, St. Paul, Minn., April 20-22, 1927.

As The Journal Views It

RATES AND COMMON SENSE

Aside from what gas will accomplish for him, the customer is most interested in what his monthly bill will amount to. Or perhaps it would be closer to the truth of the matter to reverse this statement. At all events, he is all attention and mightily on the alert whenever the subject of rates is mentioned. And the more the attempt is made to base such charges for gas service on scientific or common-sense grounds the deeper the customer sinks into befuddlement, if indeed he does not wax garrulous.

Rates—and we refer to rates based on the customer demand—are formulated from a very easily understood principle. This has to do with the fact that in order for any agency to serve the public with a commodity to the end that such service will be lasting and satisfactory, such an agency must be remunerated over and above the bare cost of doing business; it must pay its stockholders their wages which are represented in profits.

A gas company boasts of some sort of a main office which cost them money to build or else they must pay rent for the same; it has a plant for making and storing the gas which not only cost money originally, but which must also be added to by way of maintenance from time to time, just like a pair of shoes must be half-soled at certain intervals; further, the company has a great maze of piping underground and meters in the homes of its customers. Over and above the items mentioned, the gas company must maintain a corps of employees to keep the pot boiling, so to speak, and must have a sufficient supply of ready cash to at least carry the public it serves for a month without pay. All of the foregoing, and much more, to keep the customers supplied with a necessity.

It would probably be easy to show that many customers do not pay their proportionate share of money in financially assisting the company to carry on. And it must be borne in mind that the company must pay its stockholders their wage, which is interest money. But, what is of no small concern, it seems to me somewhat difficult to show such customers with any degree of conviction. It is a problem of no mean magnitude to get them to the sensible point where they will agree that the customer who uses the more gas is entitled to a somewhat lower price per given unit supplied than will apply in their particular case.

Why should this be the case? What is the explanation for the easily proven fact that the average citizen will allow himself to be vexed and confused by a problem that is so ridiculously simple and painfully apparent? He is aware of the fact that if he ships a half a carload of goods by rail he will have to pay more per hundred pounds than will be the case if the car were fully loaded. He appreciates that, generally speaking, it costs him less to ride a given distance in a taxi if one or more additional passengers accompanies him.

It is true that he deals with certain agencies who in some cases give him more, at least by way of service, than he pays for—for example, the department store. However, it is very doubtful that the purchaser of a paper of pins ever stops to consider that the store is losing money when the same is delivered to the home. Why do certain agencies, such as department stores, persist in such practice? The answer might be that they have unconsciously gotten into this habit through the urge of competition and might well like to abandon it. We are also fairly assured that the department store as a class would be the recipient of much adverse criticism, if not abuse, at least at the start, if they began charging an honest and equitable amount for such service.

It is probably a fact that the average gas customer is somewhat perplexed by and somewhat adverse to a sliding scale of rates due entirely to the fact that it is a new thing in his existence. And education of the proper sort will speedily set him straight in this regard.

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 168

Blue Water Gas

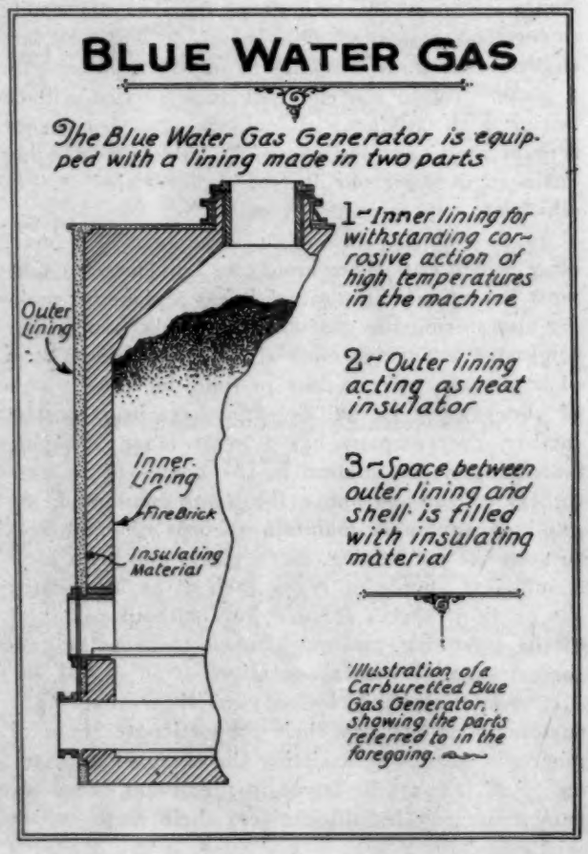
One of the most important parts of the blue water gas generator is its lining, and there are indeed few technical structural parts that have given more trouble than it. This is true, in fact, of linings in all sorts of apparatus, not to say gas generators alone. The lining is of course the protection afforded the shell of the apparatus against the corrosive liquids or gases, or high temperature conditions, that exist inside of the apparatus. The lining is generally of entirely different character than the shell of the machine, and there is a natural, though troublesome, tendency for the lining to part company with the shell. At any rate it is difficult to make, and, above all, to maintain a proper connection between them. Furthermore, the lining may itself not be absolutely one hundred per cent resistant to the influences that are potent enough to destroy the material of the machine itself. It gradually wears away, and as soon as there is afforded the slightest opening for the penetration of these corrosive elements, the value of the lining is entirely destroyed and the leak must be repaired, or if this cannot be done, the lining must be removed and replaced with a new one, always a laborious and expensive job.

Gas Generator Lining

In the water gas generator the lining protects the metal against the high temperatures that exist within the machine. But these high temperatures have themselves a very potent effect on the fire-resistant lining material. The constant cooling and heating which takes place in the generator, resulting in repeated expansion and contraction of the lining material, the mechanical injuries that are caused by cleaning out the machine with heavy clinker bars, has the tendency to make the life of the lining a short one. It has therefore frequently to be replaced.

The generator lining is generally made from fire-resistant brick or blocks which are themselves made from clay of good quality and highly resistant to temperatures as high as 3,000 degrees F. The thickness of the lining varies in accordance with the ideas of the designers of the machines. It is common practice to make the lining in two parts, an inner part, which takes up the wear and tear, and an outer part, which acts as a heat insulator. This, by the way, is also one of the functions of linings in technical machines, and particularly in the water gas machine. It serves to insulate the apparatus and reduce the loss of heat by radiation and convection from the outer surface of the generator. It is also common practice to provide an insulating space between the outer lining and the metal walls of the generator. The purpose of this is to provide a means of compensating for the different rates at which the metal and the fire-brick expand and contract as the temperature rises and falls. This insulating space is filled with some suitable insulating material, such as asbestos and the various patented silica insulating products.

As far as the structure of the lining is concerned,


BLUE WATER GAS
The Blue Water Gas Generator is equipped with a lining made in two parts
1-Inner lining for withstanding corrosive action of high temperatures in the machine
2-Outer lining acting as heat insulator
3-Space between outer lining and shell is filled with insulating material
Outer Lining
Inner Lining
Fire Brick
Insulating Material
Illustration of a Carburetted Blue Gas Generator, showing the parts referred to in the foregoing.

it is not necessary to spend much time here in describing how it is built up. There are many details that have to be followed out in the way the brick is placed, the manner in which the joints are made, the arching at the top and so on. In conclusion, all that it is necessary to say is that the average life of fire-clay lining is one thousand operating hours, and it is for this reason that various patented lining materials have been devised for the water gas generator.

¤ ¤ ¤ ¤

MODERNIZING HOME ECONOMIC EQUIPMENT IN SCHOOLS AND COLLEGES

(Continued from page 466)

but a most expensive way to give instructions on baking or roasting. With the regular modern domestic science ovens, it is possible for ten students to operate an oven, eliminating the use of ten portable ovens. This method gives better results, and all students are working with the same temperature, for the same length of time, and there is no fear of the ovens toppling over, as is the case when using portable ovens.

The domestic science equipment as shown in this demonstration is a sample of the most modern up-to-date home economic appliances. In the five States covered by the Mid-West Gas Association, we find eighty-two of the schools are equipped with this type of equipment. This includes Iowa State College at Ames and the University of Minnesota at Minneapolis. This leaves us approximately one hundred and thirty schools to work on.

Now how will we go about it?

Most gas managers have a talking acquaintance with the superintendent of schools. Some of them hobnob with each other at luncheons, such as the Lions Club, Kiwanis, Rotary and various other clubs, and talk about everything else concerning business, but seem to forget all about the condition of the home economic department equipment, which in most cases is the only gas consuming department in the school.

Many Superintendents Know Nothing of Their Appliances

It is surprising the number of school superintendents who do not know anything about the condition of appliances that are used in the home economic classrooms. The superintendent of schools must be the first man approached, regarding the possible installation of modern equipment. The school superintendent in most cases will introduce you to the principal of the school. He, in turn, will take you to the home economic teacher, and I can assure you that you will not meet any objection from the home economic teacher, for in every case that I know of I have found the teacher more than anxious to have the equipment changed from the old ovens to the more up-to-date ovens equipped with oven heat regulators. Up to this point there is little resistance to the installation of new equipment, and after convincing the superintendent that it is most desirable as far as the teacher is concerned, the superintendent will then take the matter up with the local board. The local board usually consists of from two to four members, a local undertaker, butcher and druggist, and in some cases a hardware man. I have found where a hardware man is on the board it is somewhat difficult to obtain the full consent of the board because of the fact that the hardware man may then handle some type of gas range. However, if the installation of modern equipment is well sold to the superintendent, it is not very difficult to overcome the lone hardware man's objection.

Why Schools Should Be Extended Courtesies

Assuming that we have sold the equipment, and it is installed at practically cost plus handling charges, what advantage is derived by the gas company, and why should they extend these courtesies to the schools, such as equipment at cost? There are several very good reasons.

Students given instructions on this modern equipment are better acquainted with the use of gas, and better appliances. It is hoped at the outset that where a new installation is made in the schools, the gas company will follow within two or three weeks after the installation with a demonstration.

The demonstration can either be verbal or physical. A physical demonstration is possible through the co-operation of the manufacturer. The manufacturer will arrange to take over the home economic class for the entire day, and prepare and serve a whole meal to the student body. During the time the meal is being cooked the class is given instructions on the use of gas, and the value of using better appliances, the cleanliness of the gas range, how the burners can be easily cleaned, and so forth.

Principal Willing to Co-operate

I have found in putting on these demonstrations that with very little urging on my part the principal was more than willing to arrange a similar demonstration and lecture to be put on before the Parent and Teachers Association meetings. I have put on several of these demonstrations, but there is no reason why the gas company couldn't carry on this valuable tie-in for better public relations with their own home economic director.

In selling the school superintendent on the installation of modern equipment in the home economic classroom you will sometimes find that the local board will not listen to any proposition that will necessitate any expense. In these cases I would suggest that the gas company ask permission from the superintendent of schools to deliver and install in the classroom without any expense to the school board a modern gas range equipped with oven heating control, and offer to take over the class for one day, and prepare and cook a whole meal, and lecture as outlined previously; in four cases where this was done we installed three full jobs; the other one, I expect, will be installed this summer.

GAS MERCHANDISING

Domestic – Industrial

Ideas for the Man Who Sells

William H. Matlack

WHAT A BIG STORY SMALL SPACE MAY TELL

Once more we arise to remark that the gas man who said, "Well, I do not think there is any use in the world in us advertising unless we can dominate the page our advertisement appears on," is incorrect. To show what may be done in small space just glance at the advertisements we have reproduced this week. Don't they stand out? Do you doubt that the "Heat Your Home with Gas" advertisements will go over? What do you suppose such an advertisement does on a hot July day, a day when it is too humid and too hot to think? Let us tell you what that "Heat Your Home with Gas" advertisement will do—it will register in your mind; and about the time the salesman from the coal company comes along in August to urge you to fill the bin now, you will remember the advertisement you saw somewhere that said something about heating your home with gas. You will remember about building fires, trying to keep them regulated, about ashes and dirt, and you will investigate gas for fuel. The woman will appreciate the other "canning" advertisement and even if she is a housewife with only a flat and a flivver, they will register as well as the other advertisements we are reproducing this week. The two Ruud advertisements are suggestions for billboard displays.

¤ ¤ ¤ ¤

WHY NOT GO ON?

Now that the gas companies have taken to the special one-day sale, why not go on—why not have a "Blue Monday" sale the first Monday in each month? Why not have a "Saturday Special" each month or each week? There is no reason why the gas appliance dealer cannot fall in line with the department store and the specialty shop and have weekly or monthly special sales.

As we view it, the gas company operating an appliance store in the cities of from 10,000 to 75,000 can ill afford not to have some sort of "special" for Saturday.

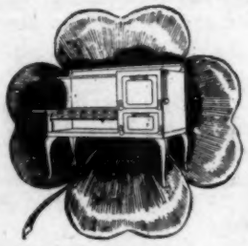
Look at it in this light: Pay day is the day folks "shop" and pay day is either Saturday or the first or fifteenth of the month, and, figure it anyway you like, these are the days to put on your "specials," or they are at least the days on which your "special sale" should open—advertise in advance and open your sale on Saturday or pay day, and you will find that folks are buying. Try this during the summer slump and take a sum out of "this summer's business."

¤ ¤ ¤ ¤

CAPITALIZE FRIDAY THE 13TH

Friday the 13th may be said to be The Lucky Day (May 13th falls on Friday) for folks who are in the market for gas appliances, judging from the number

of special inducements that are offered prospective purchasers on that day.



GOOD LUCK SALE

Today

FRIDAY

the 13th

We are going to make Today, Friday, the 13th the luckiest day in the year for 13 Chattanooga families, for on this date we will place on sale

13

Modern Over Heat Controlled Cabinet Gas Ranges

Which will bring lasting good luck and happiness to the home, for they eliminate all cooking failures.

On This 13th Day of June

We will reduce the price 13%—will allow an additional $13.00 for your old cooking appliance and for your convenience will divide the balance in 13 equal monthly payments. If you are not ready to have range installed we will hold up delivery for 13 days.

Don't Forget the Date—(TODAY / FRIDAY) the 13th

Sale Opens 8:13 a.m. and Closes 5:13 p.m.

A visit to our salesroom will convince you that the modern Gas Range is superior to all other cooking appliances. Better come early as only 13 ranges will be sold at above liberal reduction in price.

"Rain or Shine Gas Is Dependable All the Time"

CHATTANOOGA GAS CO.

"Public Be Pleased Service"

811-813 Broad Street Phone Main 84-398

Last year a goodly number of gas companies featured Friday the 13th by special sales, and according to reports that come in from here and there Friday, May 13th, 1927, will find as many if not more companies hitting on all four this year.

Ed Brewer, of the Ruud Company at Atlanta, sent out a flood of postal cards to Atlanta residents last year and the Chattanooga Gas Company put on a special sale of thirteen "modern oven heat controlled cabinet gas ranges" on that day. The Chattanooga company used newspaper space to tell folks that on Friday the 13th a 13 per cent discount would be given on thirteen ranges and that as an additional inducement $13.00 would be given for old ranges.

¤ ¤ ¤ ¤

HOW TO BUILD SALES PER METER

The division sales manager of a certain gas company had studied his graphs until he was becoming prematurely gray. Gas range sales seemed to go along as usual, space heater sales held their own and water heater sales indicated a greater use by the American home manager of hot water—but sales per meter were not satisfactory. This to him, who had been out of the gas business for a few years, indicated that, notwithstanding all the talk he had heard about modern merchandising in the gas business, it was off color somewhere. Delving into the matter again, he suddenly realized that all merchandising effort was being placed on the sale of ranges, water heaters and room or space heaters, that industrial fuel and house heating were being worked hard—and that ended it, with the result that the per meter sales of gas was on the wane.

Calling the local sales managers together, this sales manager put it up to them this way: "Boys, we have got to get behind the domestic customer and boost his demand for gas service; we will have to sell him more laundry stoves, more ironing machines, more gas-heated washers, more dryers, more incinerators; in fact, we have to get not just two or three appliances in the home of every customer, but we must get from six to eight. Now here is how we will do it: I will match your sales organizations; we will go out to sell more laundry equipment during a given thirty-day period; we will base and rate all sales made; we will rate each and every appliance sold on a point basis and base the total sales on a per meter basis, and the city making the most points during a given thirty-day period will be banqueted by the city making the fewest."

Plan Announced at Meeting

After the appliances were rated and all was set, an evening meeting was called, and, to start the thing off with a bang, the city having the smallest number of gas meters (a combination town, if you know what I mean) got up during the meeting and challenged the larger city to sell more appliances per meter than his big burg brother. The challenge was taken on, and the next day the sale opened and went on at full speed for thirty days, with the result that over $11,000 worth of new equipment now reposes in the homes of the two cities participating in this home laundry sale—and the strange thing about it is that the combination town made almost as many points as the straight gas town which had three times as many meters. "The sales of appliances during this month," said the division sales manager, "are more diversified than during any other thirty days' record on file in the office of the company." It might be well to say that the sale of electric appliances was also diversified during this period and that in both cities the salesmen have decided that it is folly to direct all of their efforts to one line of appliances.

Plans to Make Money

This division sales manager having spent a number of years in the resale of other kinds of merchandise, is fighting to build a real turnover stock, and, taking advantage of hand-to-mouth buying, is cutting his lines and stock to the bone through the use of special drives on special standard appliances, while at

the same time he pays a bonus on other lines that will increase the sale of gas per meter. "This may look like a foolish thing to do," he says, "yet results do not indicate that it is, so far. My idea is that while we have a special sale on to sell a given gas range, I want the boys to sell other merchandise as well, and I know that unless there is a 'dollar reason' for them to sell the other appliance they will not do it, so I put a bonus on a circulating water heater and a Time-O-stat during our range sale. Do they sell any? We'll say they do, and they will sell clothes dryers on the same basis when we have our water heater sale." That sounds reasonable, and we feel that it is worth while if we are to build up per meter sales.

Applying Reason to Public Utility Problems*

Advantages and necessity of obtaining the facts

Frank Milhollan
Bismarck, N. D.

CENTURIES ago, before you and I, or any of our immediate ancestors, were concerned with B.t.u.s, or even B.V.D.s, the Prophet Isaiah said: "Come, let us reason together." I am charitable enough to believe that your chief purpose in assembling here today is for the purpose of reasoning with one another to the end that you may discover more efficient methods of rendering service to your consumers; that you may profit by the experience of others, and more clearly recognize your rights and duties as operators of great public utility properties furnishing a commodity so essential in the modern home. I, therefore, make bold to reason with you by discussing some matters which, to one engaged in regulating rates and service of public utilities, seem to merit consideration. I am not unmindful of the words of Solomon that "There is nothing new under the sun"; still, the manner in which the gas industry has overcome obstacles which a few years ago seemed almost insurmountable encourages me to attempt the drastic experiment of suggesting something new, or at least to restate old principles.

Meaning of Public Utility Problems

When we speak of public utility problems we are not thinking in terms of engineering or finance, but rather of the every day transactions with individual consumers or municipalities pertaining to service and rates or related questions. It will not be my purpose to go into detail in discussing the nature and cause of their complaints. There are more than 57 varieties of each. I am sure that you appreciate your responsibility in the matter of service—your duty to serve adequately the communities in which you operate. I have no sympathy for the utility which, under normal conditions, is rendering inefficient service, for this is the basis of most of our aggravated complaints. I do, however, recognize that in the matter of rates you have a problem which requires the earnest consideration of all thoughtful persons. It may be stated as a general rule that the majority of controversies over these problems arise through the failure to apply reason to facts. It follows, of course, that there can be no scientific basis for determining rates without regard to facts. Herein lies the solution of many of your problems, namely, getting the facts to the people. This is no easy task, but the fact that a problem is difficult does not excuse us from attempting to solve it.

I do not wish to convey the thought that all of the problems involved in controversies are chargeable to the consuming public. On the contrary, I feel that a great deal of educational work among public utility men, emphasizing their duty to the public, may well be carried on by organizations such as the Mid-West Gas Association. A large part of our time is taken up by investigating complaints that should have been adjusted by the utility. In many instances the facts with reference to some transaction have been withheld from the public until the controversy came to a formal hearing. I may say that in the great majority of cases conducted by us, whether questions of rates or service are involved, the public has been reasonable when the facts were shown. There are exceptions, I will admit, as in the case of a prejudiced public.

State Regulation Has Been Beneficial

To those of you who come from States where public utilities have not been placed under the jurisdiction of State commissions, it may appear that the commission is an unnecessary evil. I am aware that some public utility men regard regulation by us as little more than interference with management, but, fortunately, these men are in the minority. After nearly nine years of experience in my present position, I have reached the conclusion that State regulation of public service corporations has done more to prevent abuse, equalize rates, improve service and restore confidence than any other one thing.

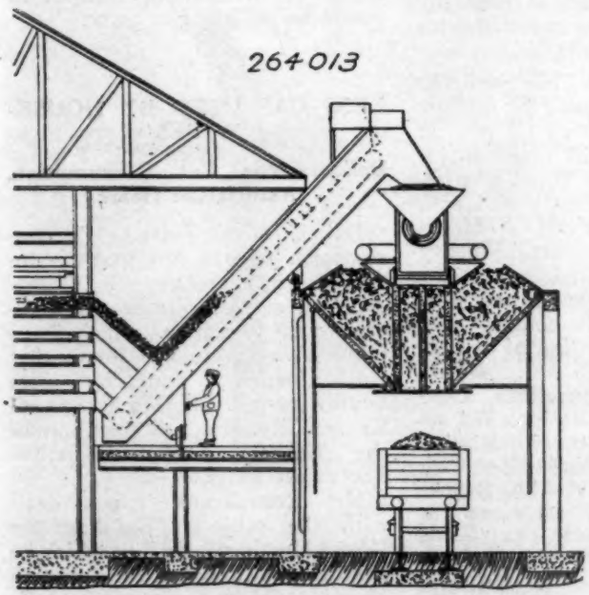
(Continued on page 18)

*Paper read before the Mid-West Gas Association Convention at St. Paul, Minn., April 22, 1927.

PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

DISCHARGING AND QUENCHING COKE

THE coke from the retort is discharged upon an endless chain-elevator enclosed (except for an opening for the admission of the coke) in a casing. The elevator passes through an opening in the side wall of the retort house and delivers into a screen outside the house. The elevator is traversible along the stage of the retort house, and the screen along the top of fixed storage hoppers. The



coke is quenched within the elevator casing. The elevator chain is in motion only when coke is being discharged from a retort and the proportion of the elevator occupied by coke under quenching is 100 per cent., that is, virtually, it is always full of coke. The steam from the quenching operation is used as an additional means to assist quenching, by displacing air from the interior of the elevator casing. The steam escapes external to the retort house, a balanced baffle or valve being provided, if desired, to maintain the interior at slight pressure. The quenching water is circulated and used repeatedly. The interior of the elevator casing is maintained at level gauge or slight pressure, so that its chimney effect is dormant, and air is in consequence not induced up the casing.

The reduced first cost of the apparatus, compared with long hot coke conveyors, is such as to permit of a spare or second traveling elevator and traveling screen being installed as a stand-by or for use in a large retort house.—British Patent 264013.

K. S. G. LOW TEMPERATURE PROCESS

THE principal feature of the process is the retort, which consists of a double revolving drum. The retort is slightly out of the horizontal plane, is supported on both sides and is surrounded with brickwork along the whole length of the shell. The construction of the retort is such that the inside drum, which is kept cool by the continuously incoming coal, is the strongest link and is the carrier for the whole structure, the outside shell, which becomes highly heated, being loosely fitted to the inner shell. The heating is effected by means of a large stream of gas which is circulated around the retort, which is heated up in different places by gas from the combustion chamber.

The average temperature obtained in the combustion chamber with producer gas is 1,300 degrees C. and the temperature of the gases in the chimney is 325 degrees C. This indicates very high thermal efficiency. A large volume of gas is circulated at high speed in this heating arrangement. Internal heating is supplied by means of superheated steam, controlled by special valve arrangement.

The process is continuous from bunkers to the retort and the results obtained are shown in the following tabulation:

Average Results from Some American Coals Having 33 to 36 Per Cent Volatile Matter

Yield	Quantity	% by Weight
Semi-coke	1412 lbs.	70.6
Tar	30.6 gals.	13.2
Gas (772 B.t.u.)	3470 cu. ft.	10.0
Motor spirits	3.30 gals.	1.2
Water		5.0
		100.0

¤ ¤ ¤ ¤

GAS PRODUCTION FROM COAL DUST

THE coal dust falls down within a vertical shaft from which the gas is removed at its bottom. The coal dust is allowed to pass through the shaft by its own weight without the addition of air. The speed of the travel of the material is therefore small and this allows it to gasify. The air which is required for this purpose is fed into the shaft at the bottom. In order to regulate the fall of the particles of coal dust so that it is as slow as possible and also to attain regular distribution of the coal particles within the shaft, the coal dust is advantageously distributed through centrifugal action over the cross-sectional area of the shaft and thereby thrown against impact surfaces, which have the effect of reducing the speed of the descent of the particles. German Patent No. 439,011.

NEWS OF THE GAS INDUSTRY

U. G. I. Contracting Co. Activities

Port Huron, Mich.—The U. G. I. Contracting Company of Philadelphia has received an order for one U. G. I. Model "B" Automatic Control to be installed at the Port Huron plant of the Detroit Edison Company.

Allentown, Pa. — The Allentown-Bethlehem Gas Company will install a 6,000,000 cubic feet waterless holder at its plant at Allentown, and has given the contract to the U. G. I. Contracting Company for installing the foundations for the holder, as well as grading the site, installing yard connections and painting the holder upon completion. The field inspection of the holder will also be taken care of by U. G. I. inspectors.

Waukegan, Ill. — The North Shore Gas Company is preparing to make extensive improvements at their plant at Waukegan, and among these improvements will be an installation of an 11-foot cone top carburetted water gas set, equipped for the use of soft coal. It will also be equipped with a Chrisman Cycle and will use exhaust steam. The contract for this work has been awarded to the U. G. I. Contracting Company, which company will also install under the contract two turbine blower units and an oil pumping system in duplicate. The water gas set will be equipped with U. G. I. Model "B" Automatic Control.

Wilson, N. C.—The town of Wilson is improving its gas plant by the installation of an U. G. I. Tar Extractor of 450,000 cubic feet. The order for this tar extractor has been given to the U. G. I. Contracting Company.

Reading, Pa.—The U. G. I. Contracting Company has been awarded the contract by the Consumers Gas Company covering the remodeling of the generator house as well as remodeling one 8 ft. 6 in. U. G. I. Carburetted Water Gas Set. Remodeling of the apparatus will include the installation of Chrisman Cycle, larger connections throughout the set, connections for the use of exhaust steam. The U. G. I. will also furnish and install one vertical waste heat boiler and an oil pumping system in duplicate, together with pump house.

Shrewsbury, Mo.—The St. Louis County Gas Company is making improvements to its plant at Shrewsbury and will install an 11-foot U. G. I. Cone Top Carburetted Water Gas Set equipped with Chrisman Cycle, U. G. I. Model "B" Automatic Control, heavy nebulizing system and connections for operating the apparatus with exhaust steam. The contract also includes the installation of one 11-foot U. G. I. High Duty 4-Pass Condenser and connections. Connections will also be included on the apparatus for the installation of a future waste heat boiler.

Coney Island, N. Y.—The Brooklyn Borough Gas Company, of which Miss Mary E. Dillon is president, is increasing the manufacturing capacity of its plant and has awarded the contract for this work to the U. G. I. Contracting Company. Included in the improvements will be the remodeling of one 10 ft. 6 in. and one 11 ft. U. G. I. Water Gas Set, together with the installation of an U. G. I. Vertical Waste Heat Boiler. The Coney Island Company installed its first U. G. I. Waste Heat Boiler last fall and it having proved so satisfactory prompted them to make a second installation.

New Britain, Conn.—The New Britain Gas Light Company has arranged for the installation of considerable extensions to its distribution system and has commissioned the U. G. I. Contracting Company to do this work for them. The installation will consist of approximately 3,300 feet of 8-inch and 9,000 feet of 6-inch steel pipe; also the installation of a 12-inch cast iron distribution main. Included in the order to the U. G. I. is the installation of two compressors having a capacity of 66,000 cubic feet per hour at 15 lbs. pressure. The U. G. I. Contracting Company will also install a Model "B" Automatic Control in the New Britain gas plant.

* * *

LESS GAS USED BY HOUSEWIVES

Delicatessens Cut Consumption, Association Hears

Dallas, Texas. — Domestic consumption of gas has greatly decreased since the growth of delicatessen stores, restaurants, bakeries and laundries, which have taken away from the home that work formerly done by most housewives, F. M. Rosenkrans, of Kansas City, Mo., told members of the Natural Gas Association, Southwest Division.

Mr. Rosenkrans' paper dealt with the subject, "Building the House Heating Load," in which he pointed out how the consumption of gas could be increased by selling the house heating plan to the public, substituting gas furnace heating for coal and oil heating.

The paper told how the plan could be sold and how it is being sold by the firm of which he is business manager. Installation of coal and oil furnace conversion equipment allowing the use of gas make it cheaper than to install all new gas burning equipment, he said.

* * *

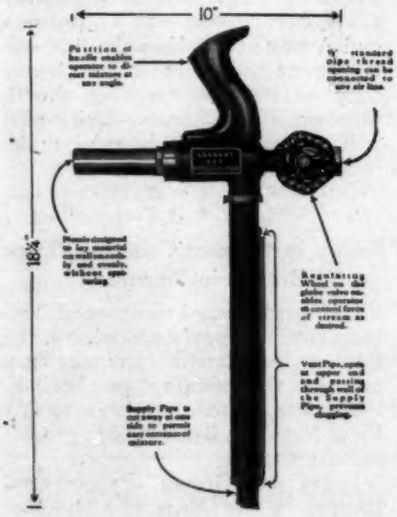
District Offices Combined

The Philadelphia district offices of Combustion Engineering Corporation, Heine Boiler Co. and Ladd Water Tube Boiler Co. have been consolidated at 807 Bankers Trust Building, Philadelphia, Pa.

New Method of Furnace Maintenance

Botfield Refractories Company, Philadelphia, has developed a method of maintenance that makes it easy to keep refractory construction in good condition through periodic and systematic maintenance.

By this new method linings can be returned to good condition whenever the equipment is out of service for a short time. Sometimes the repairs can be made without interrupting the operation



of the equipment. Cracks, crevices, joints and brick pores can be filled up quickly and efficiently. Burned-out sections and depressions can be patched. Walls can be maintained at their original thickness, with a smooth uniform surface presented to the attack of flame and other destructive elements encountered in operation.

In this method of refractory maintenance, three major elements are employed. They are the Adamant Gun, Adachrome (a chemically-neutral refractory material), and Adamant Fire Brick Cement.

The Adamant Gun is used for blowing protective coatings on brickwork in the form of pre-mixtures of Adachrome (or other refractory materials) employing Adamant Cement as a binder.

Weighing less than four pounds, the Adamant Gun requires only one man for operation. It uses air or steam at 50 lbs. pressure or more. As air is more satisfactory in results, its use is recommended wherever possible. The operator simply connects the air line to the one-half inch standard pipe thread opening on the Globe Valve of the Adamant Gun, places the supply pipe in the pre-mixture, turns the Globe Valve and the Adamant Gun sprays the pre-mixture smoothly and evenly on the structure. Thus all brick pores, open joints, cracks and crevices are quickly filled up, the wall is given a protective coating that is highly refractory and resistant to the attack of fusible coal ash, sulphur and other impurities in either coal or oil fuel which causes fluxing, slagging or melting of the brick.

Consistently used, this method will keep furnace linings in excellent condition—eliminating many a relining and effecting appreciable savings in refractory repair cost.

* * *

Ruud Manufacturing Co. Brings Out New Unit

A new addition to an old and honorable family has just been announced. Its name is Autohot.

The Ruud Manufacturing Company have been experimenting for the past five years to develop an automatic storage water heater correct in mechanical design and construction and to sell at a price within the income of the small home owner.

The usual Ruud practice of doing their experimenting in the laboratory and not at the expense of the public made it necessary to spend a great deal of time to perfect this new heater. Every department was called on for extra duty. The purchasing department scoured the country for materials that would meet the standard of Ruud quality and at the lowest possible prices. Draughtsmen worked late at night over their drawing boards working out problems of design. The engineering department spent countless hours in tests to make absolutely sure that the new heater was perfect and that it would stand the greater test of time. The factory superintendent and his foremen worked diligently to schedule production to such a fine degree that a low price would be possible. For five long years this work has gone on and not until every minute detail had been worked out did the sales department announce that they were ready to start merchandising the Autohot.

Typical Ruud quality and the incorporation of many standard Ruud features gives the small home owner an honest-to-goodness automatic water heater at a price he can afford to pay. Just for example: The Ruud Moment Valve, a thermostatic fuel control designed by Edwin Ruud and used on all Ruud automatic storage systems, is used on the Autohot. Also, the Ruud Automatic Gas Cut-Off that shuts off all gas to the burner in the event the pilot light is extinguished. The heater has a full front mechanical rigging which makes it possible to install the Autohot in any space of eighteen inches, which is the actual tank diameter. All working parts are accessible from the front. The burner, automatic gas cut-off, pilot light, pilot line, needle valve and adjustable air shutter are removable in one piece. By simply loosening two brass to brass unions this assembly can be taken out for cleaning.

The new Autohot is made in two sizes—twenty and thirty gallon capacities. They sell at $95 and $125 list.

* * *

E. C. Uhlig Addresses Chemistry Class on Manufacture of Gas

Brooklyn, N. Y.—The students of the Industrial Chemistry Class of Pratt Institute, Willoughby Avenue, were addressed recently by Mr. E. C. Uhlig, chief chemist of the Brooklyn Union Gas Company.

Mr. Uhlig gave a very interesting and instructive talk on the manufacture of gas. He described the process of manufacturing carburetted water gas from the receipt of the raw materials through the various apparatus to the delivery of gas into the mains.

His lecture was illustrated by lantern slides.

AMERICAN GAS ASSOCIATION NEWS

Talks on Industrial Uses of Gas

New York, N. Y.—A total of 43 talks on the industrial uses of gas have been given recently and 52 are booked for presentation in the near future, according to H. H. Smith of the Boston Consolidated Gas Company, Boston, Mass., chairman of the speakers' bureau of the Industrial Gas Section of the American Gas Association.

Talks have been given in the following cities: Worcester, Mass.; Haverhill, Mass.; Springfield, Mass.; Fall River, Mass.; Lowell, Mass., and Boston, Mass. Twelve talks have been delivered in Woonsocket and Pawtucket, R. I., and two have been given in Hartford, Conn. Three have been given in New York, and eight in Cincinnati, Ohio.

Data on Competitive Fuels Being Prepared

New York, N. Y.—The American Gas Association is now preparing for the use of its members a series of confidential information sheets on the developments in the use of fuels now in competition with gas for industrial and factory heat operations.

A wealth of valuable information, including comparative data, results of tests, etc., on all developments of a competitive nature will soon be on hand as a result of the work done by the committee on competitive fuels, of which R. H. Staniford, of the Brooklyn Union Gas Company, is chairman. This is a committee of the Industrial Gas Section of the American Gas Association.

Industrial Gas Sales Data Being Collected

New York, N. Y.—The sales methods committee of the Industrial Gas Section of the American Gas Association is collecting data regarding the industrial gas sales methods and policies pursued by various companies. The committee has already sent out 150 questionnaires and received 20 replies. Although it is somewhat early as yet to indicate marked trends, it has been shown that there is need for the formulation and establishment of definite and consistent sales methods to be employed by all companies.

Convention Calendar

May

9-11 Natural Gas Association of America. Annual meeting, Cincinnati, Ohio. Guy F. Batchelor, secretary, 904 Oliver Bldg., Pittsburgh, Pa.

19-21—Indiana Public Utility Association. Annual meeting Gas Section, French Lick Springs Hotel, French Lick. E. J. Burke, secretary, 1270 Peoples Gas Bldg., Chicago, Ill.

25-28—New York Regional Sales Conference. Annual meeting, Lake Mohonk Mountain House, Lake Mohonk, New York.

31 & June 1—American Gas Association. Production Conference of Technical Section, Detroit, Mich.

June

16-17—Canadian Gas Association. Annual convention, King Edward Hotel, Toronto, Canada. G. W. Allen, secretary-treasurer, Toronto.

21-22—Empire State Gas and Electric Association. Annual meeting, Commercial Section, Elmira, N. Y.

July

5-7—Michigan Gas Association. Annual convention, Grand Hotel, Mackinac Island, Mich. Albert G. Schroeder, secretary-treasurer, Grand Rapids, Mich.

$11,871,541 RISE IN ASSESSMENTS ON CITY PROPERTY

Laclede Gas Light Co. Hardest Hit by Equalization Board—Valuation Increased $8,800,000

St. Louis.—Increases in assessments of real and personal property in St. Louis aggregating $11,871,541, or $306,275 in taxes, were made by the City Board of Equalization during a month's equalization session which ended recently.

The largest increase was in the personal property assessment of the Laclede Gas Light Co., which was raised $8,800,000 from the company's return of $3,608,708 to $12,408,708. The increase in tax would be $227,040.

WORK STARTS ON NEW GAS MAINS

$1,000,000 Program Includes Additions to Manufacturing Plants

Minneapolis, Minn. — Construction work was started today on a building program for the Minneapolis Gas Light Company involving an expenditure of $1,000,000. The work includes six miles of mains and extensive additions to the manufacturing plants of the company.

A new main will be built from the gas storage plant at Broadway and Central Avenue to Thirty-second Avenue N., where the line will be connected with other heavy duty mains now serving North Minneapolis. Sixteen-inch pipe will be used on this new main, nearly three miles long.

* * *

Brown Instrument Company Opens Branch in Cincinnati

Due to the large increase of business in Cincinnati and vicinity, the Brown Instrument Company announces the opening on April 1, 1927, of a Cincinnati branch, 781 First National Bank Building, Cincinnati, Ohio.

Users of Brown Pyrometers, Electric Flow Meters, CO_2 Meters, Recording Thermometers, Pressure Gauges and Tachometers, and the many concerns interested in temperature, flow, pressure, speed and combustion problems, will appreciate this new branch office. Mr. J. R. Green is the district manager.

* * *

HARRISON W. WOOD NEW QUIGLEY APPOINTMENT

Harrison W. Wood has joined the service staff of the Quigley Furnace Specialties Co., Inc., of New York, manufacturers of Hytempite, Quigley Refractory Gun, Triple-A Solutions, Quigley Acid Proof Cement, etc. He will cover the Central and South Atlantic States.

Making his headquarters at Atlanta, Mr. Wood will co-operate with all Quigley agents throughout the Central and South Atlantic States.

Gas Firm Tries For New Revenue

Revised Rate Schedule Expected to Produce Largest Business in Company's History—Mains Being Extended

Spokane.—As the result of the adoption of a new schedule of rates in which the minimum charge is lowered from $1.30 to 70 cents a month the Spokane Gas and Fuel Company, according to General Manager James L. Stone, is about to open a vigorous campaign for new business expected to produce the biggest year in the company's history. The new rates are expected to become effective May 8.

"In 1926 we produced and sold more gas by 30,000,000 feet than in any preceding year," said Mr. Stone. "But this increased volume was largely for industrial use, handled at a low rate. We have gradually been working around to the point where we can offer inducements to the domestic user, and we believe we have attained this now with our reduced minimum charge, flat rate, hot water heating and the further step, just now being put into operation, of bearing all of the service cost of installing new ranges from our main in the street to the range in the consumer's kitchen.

"We have an enlarged crew of men at work making extensions to our mains in districts where new business is in sight. In this plan of expansion we are not bucking any of the existing utilities now in the field, as our efforts will be directed to get on our lines some of the many domestic prospects now burning wood and coal.

"Last year we introduced the flat rate water heating plan, and in about nine months made 225 installations of this kind. We have found that constant hot water is a great home convenience for which a big demand exists. House heating with gas is a coming thing and we expect to push this as well. We are also preparing to install refrigeration systems operated by gas, which is another new development in the domestic field."

HEATING FIRM ENLARGES PLANT

J. D. Gerken Company Increases Capital to $100,000

Toledo, O.—Increase in the capital of the J. D. Gerken Company, manufacturers of heating equipment, to $100,000 and doubling of its manufacturing plant space at 25-7-9 Ontario Street, was announced by John D. Gerken, president, as the first move in the manufacture of a new gas heating system for homes.

For several years the company has manufactured thermoflectors and distributed them nationally through 20 offices located throughout the country.

The new product of the company is a gas heating system using hot air principle that will be installed in individual room units and in tests conducted for more than a year in Toledo the plan has shown a big ratio of economy over old methods of home heating.

Colorado Gas for Utah Too Costly, Is Decision

Denver.—Possibility of fuel gas for Utah from Northwestern Colorado seemed to vanish following a conference of officials of the Midwest Refining Co. Though the matter had been in contemplation for three years, it is said that prohibitive costs would make the idea impracticable.

* * *

Gas to Be Supplied by Semet-Solvay Co.

Niagara Falls. — The Niagara Falls Gas and Electric Light Company, supplying gas to 3,000 consumers, will quit manufacturing gas and will supply gas from the Semet Solvay Company, Tonawanda, on May 1st. A reduction in gas rates will be made when the new source of supply is issued, it is understood. The net price for gas is now $2.30 per 1,000 cubic feet.

UTAH FUEL GAS IS DISCOUNTED

Engineer Says Project Has Been Under Discussion Three Years

Denver. — Fuel gas for Utah from Northwestern Colorado and Southern Wyoming is a possibility, but little more, according to R. S. Lord, president of the Hope Engineering Co., of Mt. Vernon, Ohio.

Lord met in conference with officials of the Midwest Refining Co. concerning a pipe line that may be laid from Midwest fields to Salt Lake City and other Utah points.

"The matter has been under discussion for at least three years; there have been no contracts signed, and I don't know when there will be any contracts," Lord said.

Officials of the Midwest Refining Co. said the matter was being considered, but that no action had been taken.

The proposed pipe line would extend from fuel gas fields of the Midwest Refining Co., the Prairie Oil & Gas Co., and the Salt Creek Producers.

Utah territory that would be served by the line includes Salt Lake City and adjacent industrial settlements.

The cost of such a project is estimated at $15,000,000, for which a 300-mile line would be constructed.

* * *

New Gas Co. Opens Offices

Oceanside, Cal.—An office and display and storerooms for the new South Coast Gas Company, which will supply gas for Oceanside and this section, are being fitted up in the Struve building on Tremont Street between Second and Third Streets. The room has been divided with a concrete partition and the front room will be nicely furnished and fitted up as an office and display room for gas fixtures while the room in the rear will be used as a storage room.

Work on the building of the plant is proceeding at a good rate, foundations for the various portions of the equipment are in place and the erection of these will be under way shortly with a view to being prepared to furnish gas in the city at an early date.

THEY LIKE GAS

Realtors Appreciated Mr. Putnam's Talk at Luncheon

Greenwich, Conn.—The regular luncheon and meeting of the Greenwich Real Estate Board was recently held at the Maples. About twenty-five members were present and listened to a talk by E. F. Putnam, of the Greenwich Gas Company, upon the work which that company had accomplished during the past few months in connection with the installation of gas throughout the town. Mr. Putnam briefly reviewed the extent of the work already done and some of the plans which the company has in view for the future.

This was followed by a general discussion in which the opinion was voiced by most of the real estate men present that the introduction of gas in Greenwich has been the most constructive piece of work which has been done in the town in the last thirty years, and that had been found the most helpful in connection with the sale and rental of property. Previously it had oftentimes been difficult to sell or rent property here to people who had been used to having the advantage of gas service in other places, and this objection to Greenwich as a place of residence has now been eliminated.

The further possibilities of the widespread use of gas for home heating, refrigeration and other purposes were touched upon and at the close of the meeting the officials of the Greenwich Gas Company were congratulated upon expeditious and satisfactory manner in which the extension of gas service had been carried on over a large area of territory during the past few months.

* * *

Squantum Man Trustee of New Association

Quincy, Mass.—T. J. Harper, of 105 Bayside Road, Squantum, is one of the trustees of the Massachusetts Electric Investment Association, which recently assumed control of the Cambridge Gas Light Company and whose shares were purchased at $105 per share.

Flat Gas Pipe Is Installed Under Surface of Subway

Cincinnati. — Central Parkway and the rapid transit subway tube under it have been the source of manifold difficulties and problems, but this, the most recent, perhaps was the problem of laying a gas main across the parkway and over the subway, so that adequate gas service could be provided in a wide area on both sides of the thoroughfare.

Permission to do this job, long withheld because of the necessity for going above the concrete subway, was granted by the city last week and the company immediately got busy to work out a way to accomplish it.

The connecting installation, to be completed today, is of a type similar to one used in New York City, but is believed to be unique as far as the rest of the country is concerned.

A new kind and shape of pipe was especially designed and built. It consists of two flat, box-shaped rivetted steel pipes, which join at either end to connect to the standard 16-inch underground gas lines that were run across the Parkway in a southwesterly direction from a point in the rear of the Central Y. M. C. A. to the southwest corner of Plum and Genesee Streets.

The scant space between the subway tube top and the paving level made it necessary to use the rectangular shaped pipes. Each has a centered I-beam inside to resist traffic weight. No time was lost in making the desirable connection because of the fact that the Parkway paving job is rapidly progressing toward the location of the job.

The purpose and value of the new connecting gas line is that it will be possible to give better distribution of gas in a two-mile area along the Parkway from Broadway to Mohawk Street and that it will equalize and maintain adequate gas pressure in all radiating pipelines.

Kingston Enthusiastic About Its Gas Supply

Plymouth, Mass.—Now that the work of laying the pipes through Kingston to supply gas has actually been started, Mr. Otten, the manager of the Plymouth Gas Light Company, states that the people are very enthusiastic about this additional modern convenience which they will have for use this summer. For the convenience of the Kingston people, Mr. Otten has provided a display of modern ranges in the banquet room of the Community House, where they can be seen and inspected at leisure by the people of Kingston.

To further demonstrate to the ladies how much fun and satisfaction it really is to use these bright and shiny gas ranges, Mr. Otten arranged for Miss Emilie Webster, B. S., to give a Home Service lecture at the Community House. Miss Webster is a graduate of La-Salle Seminary and also the Boston School of Domestic Science, and is now Director of Home Service in Newton.

W. A. Muller Addresses Steel Treaters on the Various Industrial Gases

Indianapolis, Ind. — The manufacture of various gases and their uses were explained recently by W. A. Muller, of the Northern Indiana Public Service Company, before the members of the Fort Wayne Chapter of the American Society for Steel Treating. Coal, gas, carburetted water gas and producer gas were discussed. The manufacture of each of these gases was traced step by step. Mr. Muller said thirty homes in Fort Wayne were heated by gas alone and that many more will be heated in a similar manner soon. The importance of gas in industrial and domestic uses was designated, also the requirements for the universal fuel. He stressed the fact that gas industries all over the country were conducting schools in the summer season for their employes. Mr. Muller substituted for M. W. Martin of the gas company, who originally was scheduled to talk. The entire steel treating chapter will make a tour of inspection of the new gas plant shortly.